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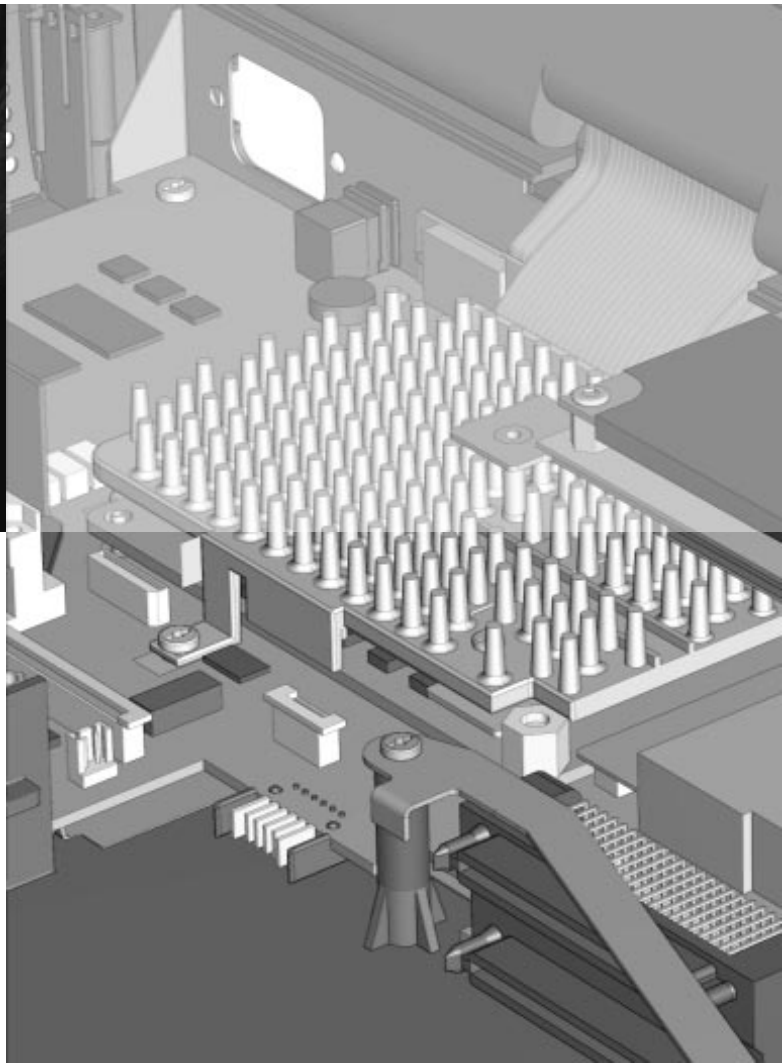
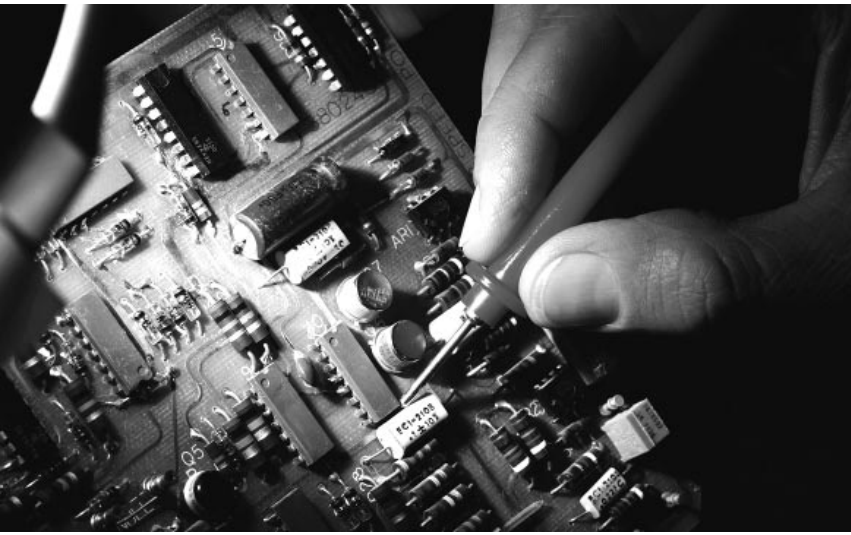
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Compaq ArmadaStation EM

Maintenance and Service Guide



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MAINTENANCE AND SERVICE GUIDE

Compaq Expansion Base

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Compaq Computer Corporation

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preface

USING THIS GUIDE

This *Maintenance and Service Guide* is a troubleshooting guide that can be used for reference when servicing the Compaq ArmadaStation EM.

Compaq Computer Corporation reserves the right to make changes to the Compaq ArmadaStation EM without notice.

Symbols

The following words and symbols mark special messages throughout this guide:



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions in the caution could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Technician Notes



WARNING: Only authorized technicians trained by Compaq should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indication of component replacement or printed wiring board modifications may void any warranty or exchange allowances.



WARNING: The computer is designed to be electrically grounded. To ensure proper operation, plug the AC power cord into a properly grounded electrical outlet only.



CAUTION: To properly ventilate your system, you must provide at least 3 inches (7.62 cm) of clearance on the front and back of the computer.

Serial Number

When requesting information or ordering spare parts, provide the ArmadaStation EM serial number. The serial number is located on the right side underneath the connector cover.

Locating Additional Information

The following documentation is available to support the ArmadaStation EM:

- Compaq ArmadaStation EM documentation set
- Service training guides
- Compaq Service Advisories and Bulletins
- *Compaq QuickFind*
- *Compaq Service Quick Reference Guide*
- Compaq Internet site at <http://www.Compaq.com>

chapter 1

PRODUCT DESCRIPTION

1.1 ArmadaStation EM Features

The Compaq ArmadaStation EM provides fully integrated desktop capabilities for the Compaq Armada E and M Series of Personal Computers. The ArmadaStation EM eliminates the need to disconnect external devices when you remove the computer.

NOTE: The Armada M300 computer requires the Mobile Expansion Unit (MEU) to be used in the ArmadaStation EM.



Figure 1-1. Compaq ArmadaStation EM

The ArmadaStation EM provides two integrated MultiBays, an industry-standard half-height bay, integrated stereo speakers, computer I/O port replication, motorized docking, and one full-sized and two half-sized 32-bit PCI slots.

A monitor support cover capable of supporting up to 75 pounds (34 kilograms) also comes with the ArmadaStation EM. A tower stand is optional.

Security Features

- U-bolt and cable lock to attach to a fixed object
- Security latch to prevent removal of MultiBay devices while computer is docked
- Keylock that disables the automatic eject mechanism to secure the computer to the base. The keylock also disables the rear panel release latch to prevent access to the computer manual eject button and PCI slots, and disables the MultiBay release buttons.

External Connectors

- Docking connector
- Serial connector
- Parallel connector
- External mouse connector
- External keyboard connector
- External CRT connector for resolutions up to 1280 × 1024
- Stereo speaker/headphones out connector
- Universal Serial Bus (USB) connectors (2)
- Stereo line-in jack
- Microphone out jack
- PCI expansion board connectors (3)

1.2 ArmadaStation EM Components

The external components on the front of the ArmadaStation EM are shown in Figure 1-2 and described in Table 1-2.

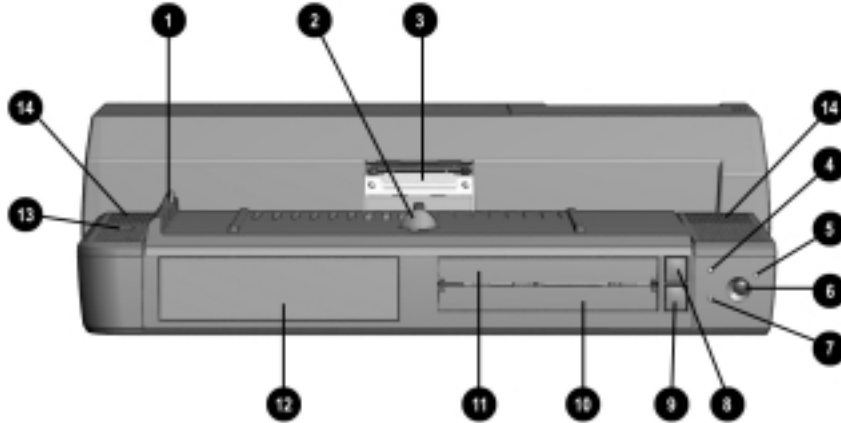


Figure 1-2. ArmadaStation EM Front Components

Table 1-2
ArmadaStation EM Front Components

Item	Description	Function
1	Alignment guides	Align the computer onto the ArmadaStation EM.
2	Retaining latch	Secures the computer to the ArmadaStation EM.
3	Docking connector	Connects the computer to the ArmadaStation EM.
4	Top MultiBay Light	Indicates a drive in the top MultiBay is being accessed.
5	Power/suspend light	When lit, indicates the ArmadaStation EM is on. When blinking, indicates the ArmadaStation EM is in Suspend.
6	Suspend button	Initiates and exits Suspend.
7	Bottom MultiBay light	When lit, indicates a drive in the bottom MultiBay is being accessed or a battery pack in the bottom MultiBay is charging or waiting to be charged. When blinking, indicates a battery pack in the bottom MultiBay has reached a low battery condition.
8	Top MultiBay release button	Releases a drive from the top MultiBay.
9	Bottom MultiBay release button	Releases a drive from the bottom MultiBay.
10	Bottom MultiBay	Supports a removable DVD-ROM drive, CD-ROM drive, diskette drive, SuperDisk LS-120 drive, hard drive, or extra battery pack.
11	Top MultiBay	Supports a removable DVD-ROM drive, CD-ROM drive, SuperDisk LS-120 drive, or hard drive.
12	Half-height bay	Supports an optional industry standard half-height device.
13	Monitor support cover recess	Supports the front leg of the monitor support cover.
14	Stereo speakers (2)	Produce stereo sound.

Components on the right side of the ArmadaStation EM are shown in Figure 1-3 and described in Table 1-3.

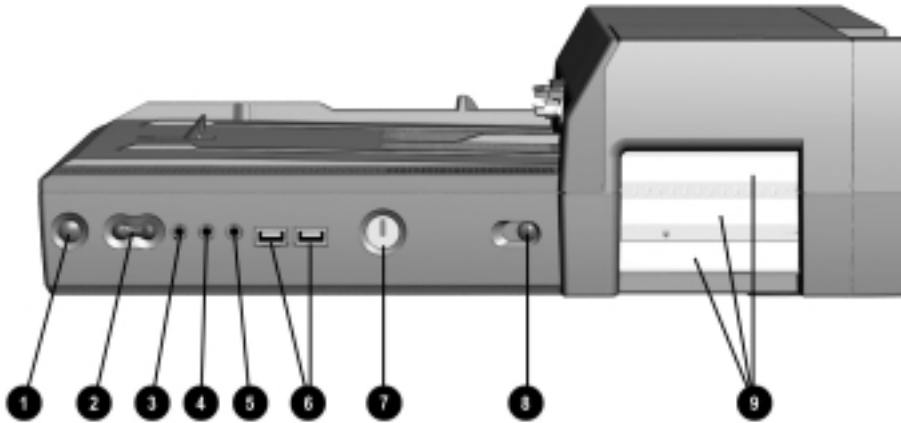


Figure 1-3. ArmadaStation EM Right Side Components

Table 1-3
ArmadaStation EM Right Side Components

Item	Description	Function
1	Computer eject button	Disconnects the computer from the ArmadaStation EM docking connector.
2	Volume control switch	Adjusts or mutes the volume of the stereo speakers or audio equipment. To mute, press between the - and + symbols.
3	Stereo speaker/headphone jack	Connects stereo speakers, headphones, or a headset.
4	Stereo line-in jack	Connects a CD player, tuner, or tape deck. The sound plays in stereo from both ArmadaStation EM speakers.
5	Microphone jack	Connects a single sound channel microphone. The sound plays from both ArmadaStation EM speakers.
6	USB connectors (2)	Connect universal serial bus (USB) devices.
7	Keylock	Locks the computer to the ArmadaStation EM and disables the automatic docking mechanism.
8	Power button	Turns the system (ArmadaStation EM and computer) on and off.
9	PCI card slots	Area for the installation of expansion boards.

The components on the rear panel of the ArmadaStation EM are shown in Figure 1-4 and described in Table 1-4.

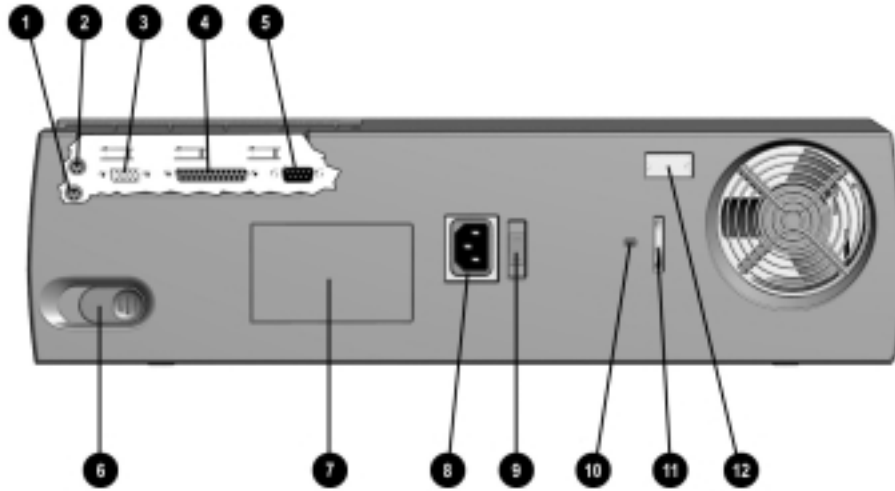


Figure 1-4. ArmadaStation EM Rear Panel Components

**Table 1-4
ArmadaStation EM Rear Panel Components**

Item	Description	Function
1	Keyboard connector	Connects an external keyboard.
2	Mouse connector	Connects an external mouse.
3	Serial connector	Connects a serial device such as a serial printer or mouse.
4	Parallel connector	Connects a parallel device such as a parallel printer.
5	External monitor connector	Connects an external monitor.
6	Rear panel release latch	Releases the rear panel.
7	Voltage switch label	Shows the voltage selections.
8	Power connector	Accepts a power cord.
9	Voltage select switch	Sets the voltage for the country where the ArmadaStation EM is being used.
10	Security cable slot	Attaches an optional security cable lock to secure the ArmadaStation EM to fixed object.
11	U-bolt	Attaches an optional heavy-duty cable and lock to secure the ArmadaStation EM to a fixed object.
12	Monitor latch slot	Attaches the monitor support cover rear latch.

Activity Lights

The ArmadaStation EM has three activity lights.

Top and Bottom MultiBay Activity Lights

The top and bottom MultiBay activity lights are located on the front/right corner of the ArmadaStation EM. These lights turn on when information from a removable drive inserted in the ArmadaStation EM MultiBays is accessed.

Power/Suspend Light

The power/suspend light is located on the front/right corner of the ArmadaStation EM. This light turns on when the system (computer and ArmadaStation EM) is turned on; this light blinks when the system is placed in Suspend.

MultiBays

The ArmadaStation EM features two MultiBays. The MultiBays support the same drives that are used in the E and M Series computer MultiBay, including hard drives (installed into a MultiBay hard drive adapter), CD-ROM drives, DVD-ROM drives, diskette drives (bottom MultiBay only), and SuperDisk LS-120 drives. The bottom MultiBay can also be used to charge MultiBay battery packs.

The ArmadaStation EM MultiBays support the following devices:

**Table 1-5
MultiBay/Device Compatibility**

Device	Top MultiBay	Bottom MultiBay
Hard Drive	■	■
Diskette Drive		■
CD-ROM drive	■	■
DVD-ROM drive	■	■
Battery pack		■
SuperDisk LS-120 drive	■	■

The system (computer and ArmadaStation EM) must be turned off when inserting or removing a hard drive, diskette drive, or CD-ROM drive from the MultiBay. The system does not have to be turned off when inserting or removing a battery pack.

Half-Height Bay

The ArmadaStation EM features one standard half-height bay, which is located on the front of the ArmadaStation EM. The half-height bay supports any standard half-height drive or a half-height MultiBay adapter.

Security Lock

The ArmadaStation EM features a security lock that allows all computer and ArmadaStation EM resources (hard drives, diskette drives, CD-ROM drives, PCI expansion boards) to be secured to the system (computer and ArmadaStation EM). When the security lock is engaged, the computer cannot be undocked, and no drives or PCI expansion boards can be removed from the system.

PCI Expansion Boards

The ArmadaStation EM provides connectors for up to three PCI expansion boards (one full-sized and two half-sized 32-bit PCI slots).

chapter 2

TROUBLESHOOTING

This chapter contains troubleshooting information for the Compaq ArmadaStation EM. Information on how to identify and correct some common hardware, memory, and software problems is included. Troubleshooting information is covered on the following topics:

- Docking and undocking
- Expansion board

Since symptoms can appear to be similar, carefully match the symptoms of the computer malfunction against the problem description in the Troubleshooting tables to avoid a misdiagnosis.

Follow these guidelines when troubleshooting:

- Complete the recommended actions in the order in which they are given.
- When the problem is resolved, stop performing the troubleshooting steps and do not complete the remaining recommended actions.
- Refer to Chapter 5 for any recommended removal and replacement procedures.
- If the problem is intermittent, check the ArmadaStation EM several times to verify that the problem is solved.

Before Replacing Parts

When troubleshooting a problem, check the following list for possible solutions before replacing parts:

- Verify that cables are connected properly to the suspected defective parts.
- Verify that all required device drivers are installed.

Problems and Solutions

Table 2-1
Solving Docking and Undocking Problems

Problem	Probable Cause	Recommended Action(s)
The computer will not undock from the ArmadaStation EM.	The operating system (such as Windows NT) does not support undocking while the computer is on or in Suspend.	Exit all applications and turn off the system if you are using Windows NT. If the computer is using Windows 95, the system does not need to be turned off.
	Security cable is attached.	Unlock security cable.
	The ArmadaStation EM is locked.	Unlock the ArmadaStation EM.
	No AC power.	Release the computer from the docking mechanism by sliding the manual release lever to the right.
The computer is not properly docked or will not dock.	The computer is not properly seated in the docking system.	Undock the computer and redock it.
	No AC power.	Release the computer from the docking mechanism by sliding the ArmadaStation EM manual release lever to the right.

Table 2-2
Solving Expansion Board Problems

Problem	Probable Cause	Recommended Action(s)
Expansion board does not work.	Expansion board is not properly seated.	Reinstall the expansion board.
Expansion board is not recognized by the system.	Appropriate drivers for the expansion board are not installed.	Obtain the necessary drivers from the expansion board manufacturer.

**Table 2-3
Solving External Keyboard Problems**

Problem	Probable Cause	Recommended Action(s)
External keyboard does not work.	External keyboard may not be securely connected.	Make sure the external keyboard is securely connected to the keyboard connector.

**Table 2-4
Solving External Mouse Problems**

Problem	Probable Cause	Recommended Action(s)
External mouse does not work.	External mouse may not be securely connected.	Make sure the external mouse cord is securely connected to the mouse connector.
	Mouse driver is not loaded.	Load mouse driver.
	External mouse was connected after the system was turned on.	Turn off system power, and turn on system again.

**Table 2-5
Solving Expansion Device Installation Problems**

Problem	Probable Cause	Recommended Action(s)
A new device connected to the ArmadaStation EM is not recognized as part of the computer system.	Cable(s) of the new external device are loose, or the power cables are unplugged.	Ensure that all cables are properly and securely connected.
	Power switch of the new external device is not turned on.	Turn off the computer, turn on the external device, then turn on the computer to integrate the device with the computer system.
	Device is not plug and play.	For Windows 95 or Windows 98: Double-click the Add New Hardware icon in Control Panel for help installing the device. You can also use Computer Setup to install a new device. Choose Tools, Adding a Legacy Device, and follow onscreen instructions.

Table 2-6
Solving External Monitor Problems

Problem	Probable Cause	Recommended Action(s)
Screen is blank.	Screen save was initiated after the Power Management screen timeout (period of inactivity).	Press any key or click the mouse.
	You have another screen saving utility installed.	Press any key or click the mouse.
	Suspend was initiated.	Press the suspend button to exit Suspend.
	The image is on the computer display.	Press the Fn+F4 hotkeys to switch the image from the computer display to the external monitor.
	Power to the monitor is turned off.	Turn on the monitor.
Computer screen is blank and the image is on the external monitor.	Image was switched to the external monitor.	Press the Fn+F4 hotkeys to switch the image to the computer screen.
Display on the external monitor is distorted.	Incorrect display device drivers are installed or incorrect resolution is set.	Select Start→ Settings→ Control Panel→ Display icon, and set the display type and resolution for the external monitor.
Garbled characters on the computer screen or flashing computer display when connected to an external monitor.	Toggled to internal computer from an external monitor that is using higher resolution than the computer supports.	Restart the system. If simultaneous display is desired, use the VGA resolution the computer supports.
External monitor screen is distorted.	Energy Star Monitor is selected on the Power Management menu, and the external monitor is not Energy Star compliant.	Press any key or move the mouse to restore the image on the screen. If the image remains distorted, turn the monitor off, then back on. Clear the Energy Star Monitor setting checkbox.
Computer display and external monitor display do not display image simultaneously.	Image was switched using the Fn+F4 hotkeys.	Press the Fn+F4 hotkeys to toggle through the three display possibilities until simultaneous display occurs.

chapter 3

ILLUSTRATED PARTS CATALOG

This chapter provides an illustrated parts breakdown and a reference for spare part numbers for the Compaq ArmadaStation EM.

3.1 Serial Number Location

When ordering parts or requesting information, provide the ArmadaStation EM serial number located on the right side of the expansion base (Figure 3-1).

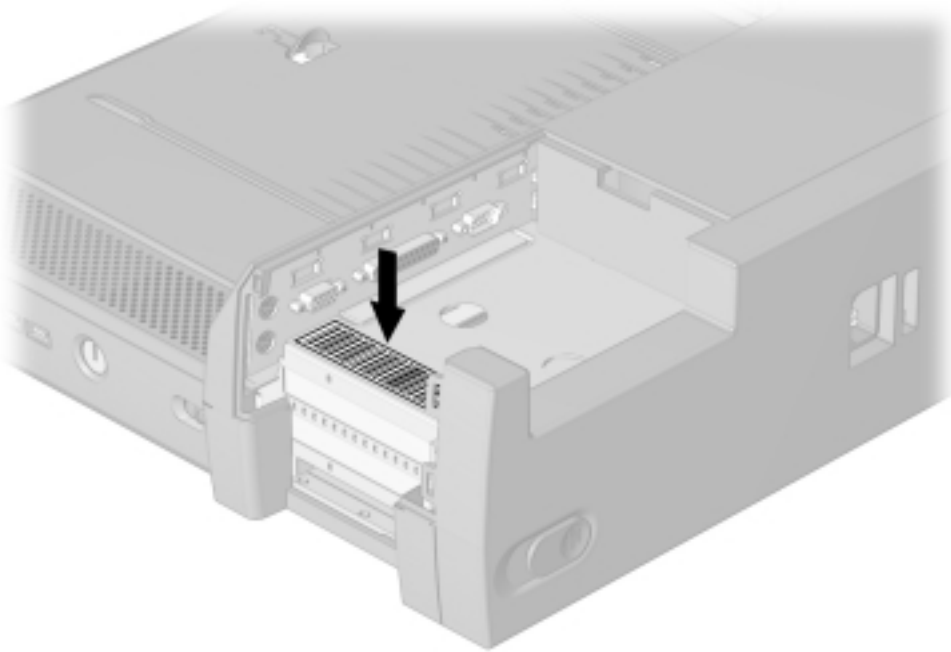


Figure 3-1. Compaq ArmadaStation EM Serial Number Location

3.2 Compaq ArmadaStation EM Components

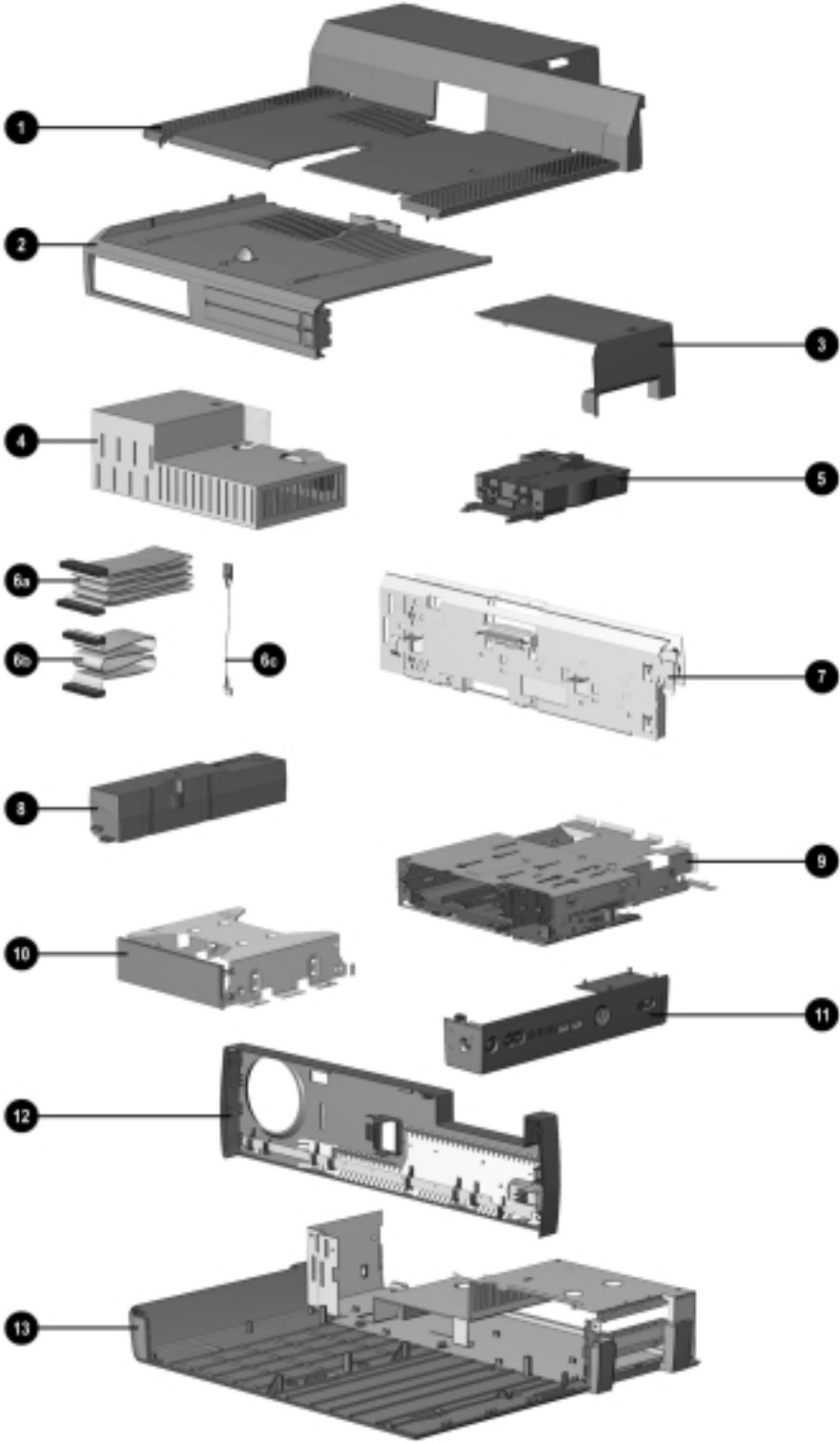


Figure 3-2. Compaq ArmadaStation EM Components

Table 3-1
Spare Parts: Compaq ArmadaStation EM Components

Item	Description	Spare Part Number
1	Top cover	155269-001
2	Tray assembly	138221-001
3	Plastics Kit, includes: Connector cover MultiBay buttons (not illustrated)	155277-001
4	Power supply	101881-001
5	Mechanism assembly	155270-001
6a	MultiBay Option Cable Kit, includes: Hard drive cable	298038-001
6b	Diskette drive cable	
6c	CD-ROM drive/audio cable Hard drive cable (7"; not illustrated) Drive power cable (not illustrated)	
7	Backplane	155267-001
8	Left speaker	155274-001
9	MultiBay	155271-001
10	Bezel cage	155273-001
11	Control panel	155272-001
12	Rear bezel	155268-001
13	Base cover	155275-001
The following items are not illustrated.		
	Power cord	121565-001
	Australian	-008 U.K. English -003
	European	-002 U.S. English -001
	Japanese	-007
	Screw Kit	155278-001

3.3 Plastics Kit Components



Figure 3-3. Plastics Kit Components

Table 3-2
Plastics Kit Components
Spare Part Number 155277-001

Item	Description
1	Connector cover
2	MultiBay buttons (2)

3.4 MultiBay Option Cable Kit

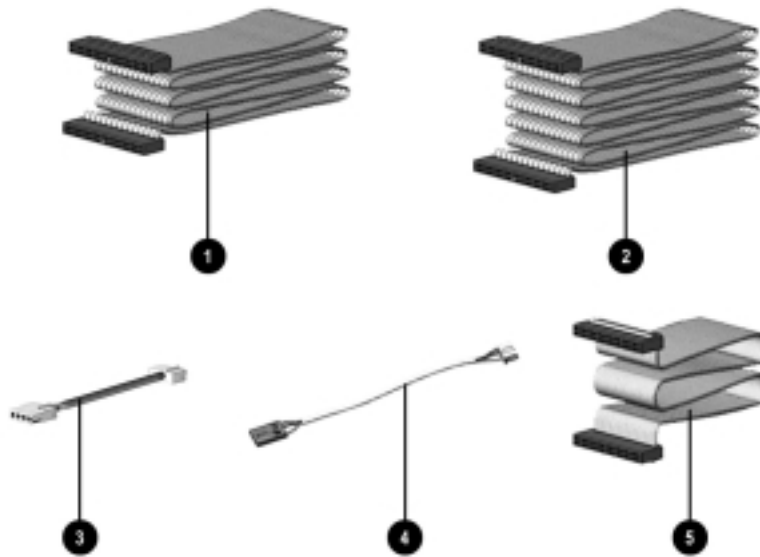


Figure 3-4. Cable Kit Components

Table 3-3
MultiBay Option Cable Kit Components
Spare Part Number 298038-001

Item	Description
1	Hard drive cable
2	Hard drive cable (7")
3	Drive power cable
4	CD-ROM drive/audio cable
5	Diskette drive cable

3.5 Miscellaneous

Table 3-4
Spare Parts: Miscellaneous (not illustrated)

Description	Spare Part Number
Compaq ArmadaStation EM <i>Maintenance and Service Guide</i>	163487-001
Compaq ArmadaStation EM Screw Kit	155278-001
Carbon keyboard	118003-XX8
Carbon monitor	307710-023
PCI CardBus reader	127397-B25
Return Kit	161774-001
Tower stand	123129-B25

chapter 4

REMOVAL AND REPLACEMENT PRELIMINARIES

This chapter provides general service information for the Compaq Expansion base. Adherence to the procedures and precautions described in this chapter is essential for proper service.

4.1 Electrostatic Discharge

A sudden discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge (ESD) may not be affected at all and will work perfectly throughout a normal cycle. Or it may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

Generating Static

Table 4-1 shows how different activities generate static electricity and at different electrostatic voltage levels.

Event	Relative Humidity		
	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl trays	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCBs	26,000 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

NOTE: 700 volts can degrade a product.

Preventing Electrostatic Damage to Equipment

Many electronic components are sensitive to ESD. Circuitry design and structure determine the degree of sensitivity. The following proper packaging and ground precautions are necessary to prevent damage.

- Protect all electrostatic sensitive parts and assemblies with nonconductive or approved containers or packaging.
- Keep electrostatic sensitive parts in their containers until they arrive at static-free stations.
- Place items on a grounded surface before removing them from their container.
- Always be properly grounded when touching a sensitive component or assembly.
- Place reusable electrostatic-sensitive parts from assemblies in protective packaging or nonconductive foam.

Use transporters and conveyers made of antistatic belts and roller bushings. Mechanized equipment used for moving materials must be wired to ground and proper materials selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Preventing Damage to Drives

To prevent static damage to drives, follow these precautions:

- Handle drives gently, using static-guarding techniques.
- Store drives in the hard drive carrying case. Do not use the MultiBay device carrying case.
- Avoid dropping drives from any height onto any surface.
- Handle drives on surfaces that have at least one inch of shock-proof foam.
- Avoid touching the connectors on the hard drive.

Grounding Methods

The method for grounding must include either a wrist strap or a foot strap at a grounded workstation. When seated, wear a wrist strap connected to a grounded system. When standing, use footstraps and a grounded floor mat.

Table 4-2
Static Shielding Protection Levels

Method	Voltage
Antistatic plastic	1,500 V
Carbon-loaded plastic	7,500 V
Metallized laminate	15,000 V

Grounding Workstations

To prevent static damage at the workstation, follow these precautions:

- Cover the workstation with approved static-dissipative material. Provide a wrist strap connected to the work surface and properly grounded tools and equipment.
- Use static-dissipative mats, heel straps, or air ionizers to provide added protection.
- Handle electrostatic sensitive components, parts, and assemblies by the case or PCB laminate. Handle them only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Use fixtures made of static-safe materials when fixtures must directly contact dissipative surfaces.
- Keep work area free of conductive materials such as ordinary plastic assembly aids and plastic foam.
- Use field service tools, such as cutters, screwdrivers, and vacuums, that are conductive.
- Use a portable field service kit with a static-dissipative vinyl pouch that folds out into a work mat. Also, use a wrist strap and a ground cord for the work surface. Ground the cord to the chassis of the equipment undergoing test or repair.

Grounding Equipment

Use the following equipment to prevent static electricity damage to equipment:

Wrist Straps are flexible straps with a minimum of one megohm +/- 10% resistance in the ground cords. To provide proper ground, a strap must be worn snug against the skin. On grounded mats without banana-plug connectors, connect a wrist strap with alligator clips.

Heelstraps/Toestraps/Bootstraps can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use them on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

Recommended Materials and Equipment

Other materials and equipment that are recommended for use in preventing static electricity include:

- Antistatic tape
- Antistatic smocks, aprons, or sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cord of one megohm resistance
- Static-dissipative table or floor mats with hard tie to ground
- Field service kits
- Static awareness labels
- Wrist straps and footwear straps providing one megohm +/- 10% resistance
- Material handling packages
- Nonconductive plastic bags
- Nonconductive plastic tubes
- Nonconductive tote boxes
- Metal tote boxes
- Opaque shielding bags
- Transparent metallized shielding bags
- Transparent shielding tubes

4.2 Service Considerations

Listed below are some of the considerations that you should keep in mind during the disassembly and assembly of the Compaq Expansion Base.

Tool and Software Requirements

The following tools are needed to service the Compaq Expansion Base:

- Phillips screwdriver (for bezel cage removal)
- Torx T-10 screwdriver (for tray, top cover, left speaker, control bay, control panel, and mechanism assembly removal procedures)
- Torx T-15 screwdriver (for PCI expansion board installation procedures and power supply and backplane removal procedures)
- Phillips screwdriver (for bezel cage removal and installation procedures)

Screws

The screws used in the Compaq Expansion Base are not interchangeable. If an incorrect screw is used during the reassembly process, it can damage the unit. Compaq strongly recommends that all screws removed during disassembly be kept with the part that was removed, then returned to their proper locations.



CAUTION: When servicing the Compaq Expansion Base, ensure that all screws are kept with the part with which they belong. Using an improper screw during reassembly can damage the Compaq Expansion Base.

IMPORTANT: As each subassembly is removed from the Compaq Expansion Base, it should be placed away from the work area to prevent damage.

Cables and Connectors

Cables must be handled with extreme care to avoid damage. Apply only the tension required to seat or unseat the cables during insertion or removal from the connector. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing the cables, and ensure that the cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; they can tear easily.



CAUTION: When servicing the Compaq Expansion Base, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the Compaq Expansion Base.

Plastic Parts

Plastic parts can be damaged by the use of excessive force during disassembly and reassembly. When handling the plastic parts, use care. Use a bezel removal tool to separate plastic components. Apply pressure only at the points designated in the maintenance instructions.

chapter 5

REMOVAL AND REPLACEMENT PROCEDURES

This chapter presents the removal and replacement procedures for the Compaq ArmadaStation EM.

5.1 Serial Number

The serial number should be reported to Compaq when requesting information or ordering spare parts. The serial number is located on the right side of the ArmadaStation EM, beneath the connector cover (Figure 5-1).

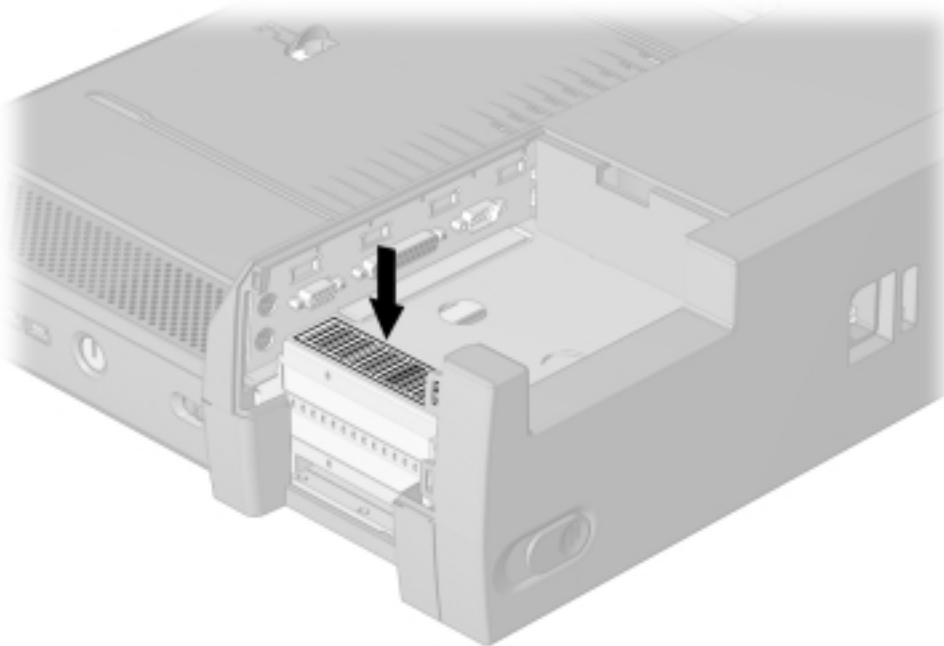


Figure 5-1. Compaq ArmadaStation EM Serial Number Location

5.2 Disassembly Sequence Chart

Use the chart below to determine the section number and disassembly sequence for removing components from the Compaq ArmadaStation EM.

5.3	Preparing the Expansion Base for Disassembly
5.4	External Components
	Expansion Base Feet
	Tray
5.5	Connector Cover
5.6	Rear Bezel
5.7	PCI Expansion Boards
5.8	Top Cover
5.9	Half-Height Bay
5.10	Left Speaker
5.11	MultiBay
5.12	Control Panel
5.13	Mechanism Assembly
5.14	Power Supply
5.15	Backplane

Figure 5-2. Expansion Base Disassembly Sequence

5.3 Preparing the Expansion Base for Disassembly

1. Turn the expansion base keylock counterclockwise to unlock it.
2. Undock the computer from the expansion base.
3. Turn off the expansion base.
4. Disconnect the power cord from the wall outlet ❶ (Figure 5-3).
5. Disconnect the power cord from the expansion base ❷.



Figure 5-3. Disconnecting the Expansion Base

6. Disconnect any external devices.
7. If installed, remove any MultiBay devices from the expansion base MultiBays.

5.4 External Components

This section describes the removal and replacement procedures that do not require access to the internal components of the expansion base. This includes:

- Expansion base feet
- Tray

Expansion Base Feet

The feet for the expansion base are adhesive-backed rubber pads. Install the feet by removing the protective covering from the adhesive back and placing the feet in their positions on the bottom of the expansion base (Figure 5-4).

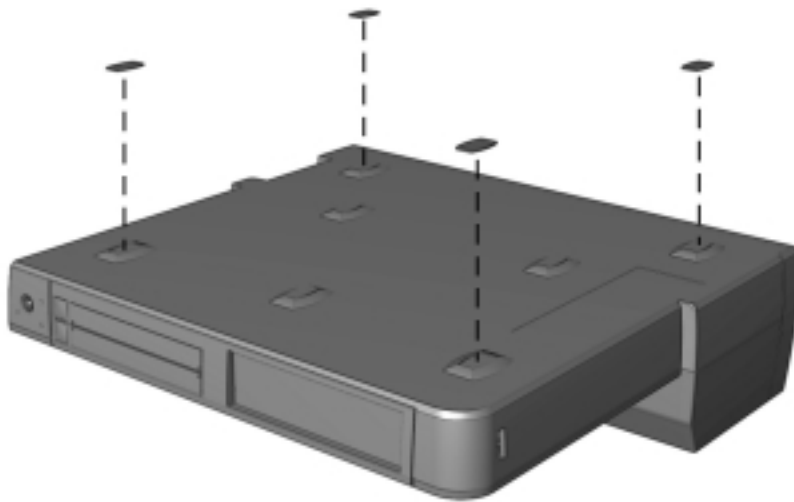


Figure 5-4. Installing the Expansion Base Feet

Tray

The tray is used to align the computer on the expansion base. The left side of the computer should be aligned with the left side of the tray when docking the computer.

1. Prepare the expansion base for disassembly (Section 5.3).
2. Position the expansion base so the front faces forward.
3. Remove the label ❶ and screw ❷ located behind the retaining latch ❸ (Figure 5-5).
4. Pull forward ❹ on the retaining latch to remove the tray.

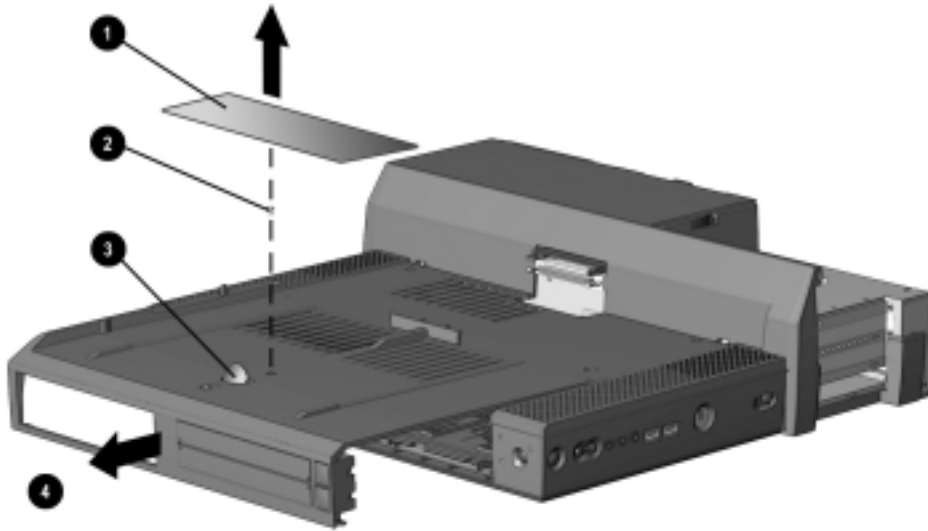


Figure 5-5. Removing the Tray

Reverse the removal procedure described above to install the tray.

5.5 Connector Cover

1. Prepare the expansion base for disassembly (Section 5.3).
2. Position the expansion base so the rear bezel faces forward.
3. Slide the connector cover to the left and remove it (Figure 5-6).

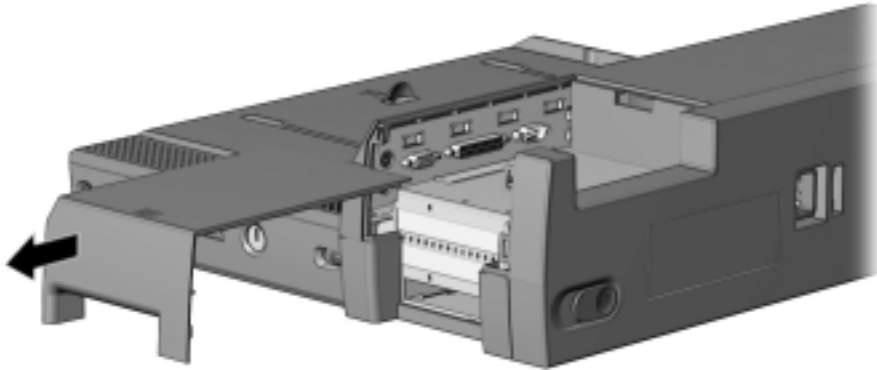


Figure 5-6. Removing the Connector Cover

Reverse the removal procedure described above to install the connector cover.

5.6 Rear Bezel

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the connector cover (Section 5.5).
3. Slide the rear bezel release latch to the left ❶ (Figure 5-7).
4. Swing the bottom edge of the rear bezel forward and up until it disengages ❷.

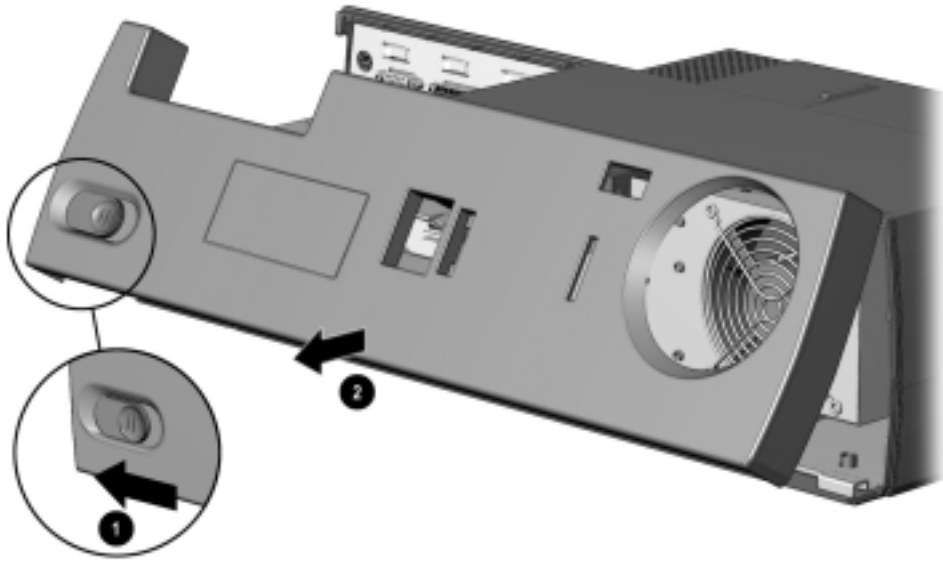


Figure 5-7. Removing the Rear Bezel

NOTE: Once the rear bezel has been removed, the manual release lever is accessible (Figure 5-8). When this lever is moved to the right, the mechanism assembly, which secures the computer when it is docked in the expansion base, releases and allows the computer to be manually undocked.

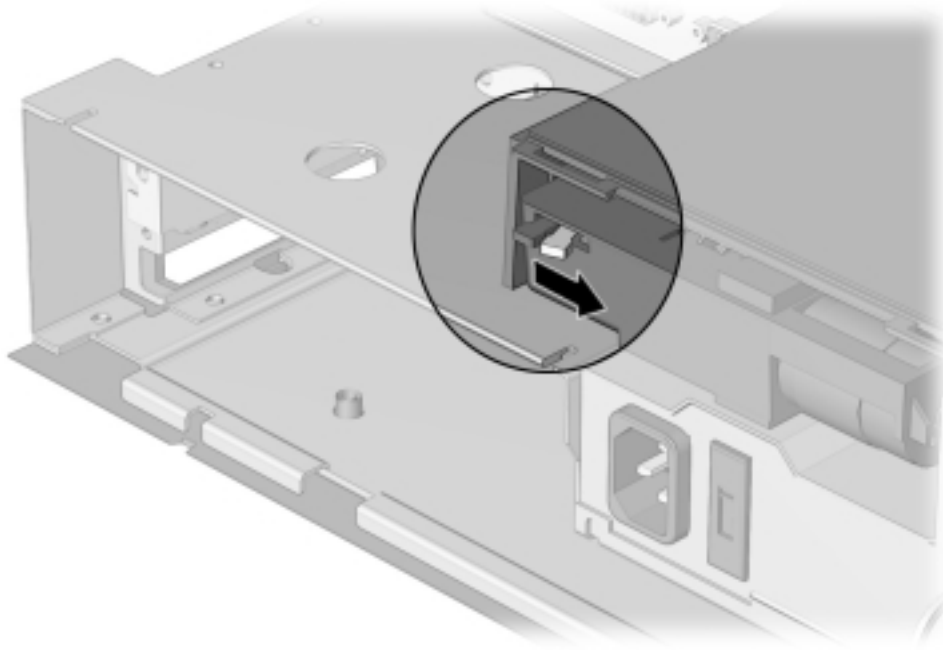


Figure 5-8. Sliding the Manual Release Lever

Reverse the removal procedure described above to install the rear bezel. Before installing the rear bezel, make sure the manual release lever is positioned as far to the left as it will go.

5.7 PCI Expansion Boards

The expansion base provides three slots for 32- or 64-bit PCI expansion boards. The expansion base supports half-sized expansion boards in slots ❶, ❷ and ❸; a full-sized expansion board can be installed in slot ❸ (Figure 5-9).

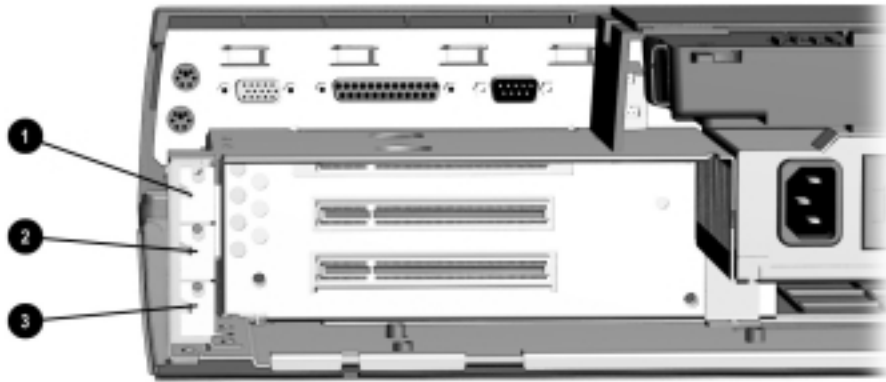


Figure 5-9. Locating the Expansion Slots

For additional information, consult the documentation included with the expansion boards.



WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the connector cover (Section 5.5).
3. Remove the rear bezel (Section 5.6).

4. Remove the screw ❶ that secures the expansion slot cover to the base cover (Figure 5-10).

NOTE: Retain the expansion slot cover and screw. They will be needed if the expansion board is removed from the expansion base.

5. Remove the expansion slot cover ❷.

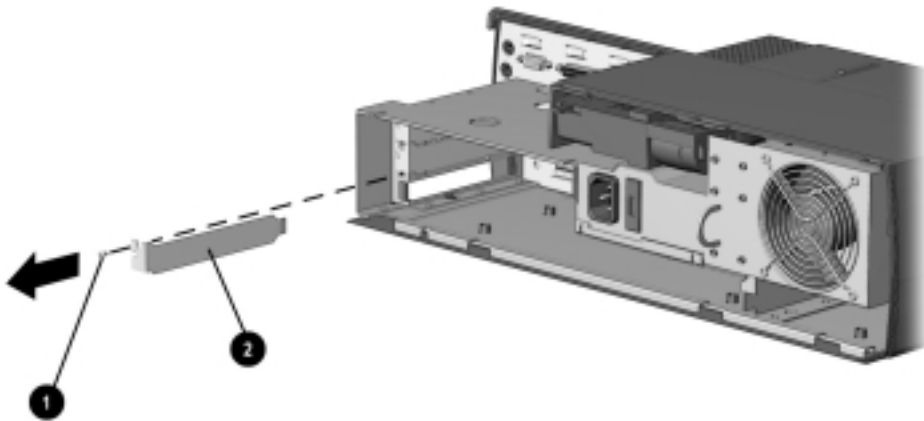


Figure 5-10. Removing the Expansion Slot Cover

6. Align the bracket on the left side of the expansion board ❶ with the expansion slot on the left side of the expansion base ❷ (Figure 5-11).
7. Push the expansion board into the expansion slot until the connector is seated.
8. Secure the expansion board to the base cover by installing the screw ❸ removed in Step 4.

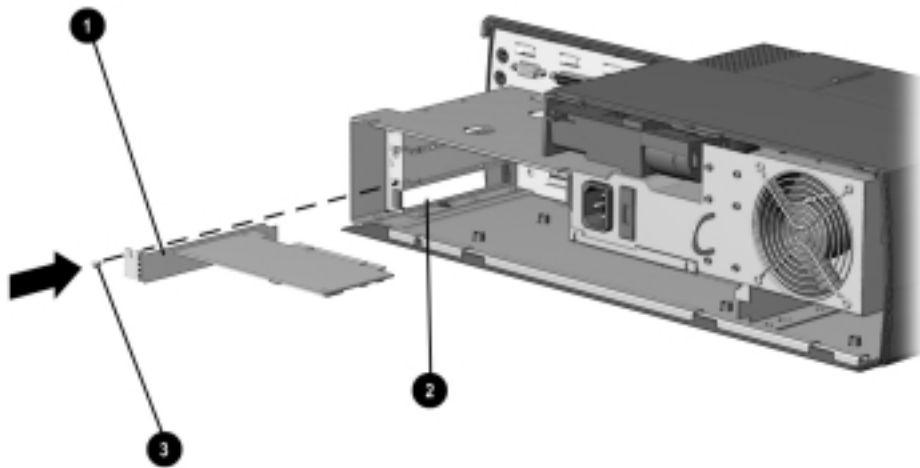


Figure 5-11. Installing an Expansion Board

Reverse the installation procedure described above to remove an expansion board.

Once an expansion board has been installed, its internal connector can be accessed on the lower right side of the expansion base. If the expansion board has a cable, refer to the documentation included with the board for connection information.

IMPORTANT: If a PCI CardBus Reader has been installed, PC Cards must be inserted label side *down* into the PC Card slot. For more information about using PC Cards, refer to the printed computer Reference Guide included with the computer.

5.8 Top Cover

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the tray (Section 5.4).
3. Remove the connector cover (Section 5.5).
4. Remove the rear bezel (Section 5.6).
5. Remove the five screws that secure the top cover to the base cover (Figure 5-12).

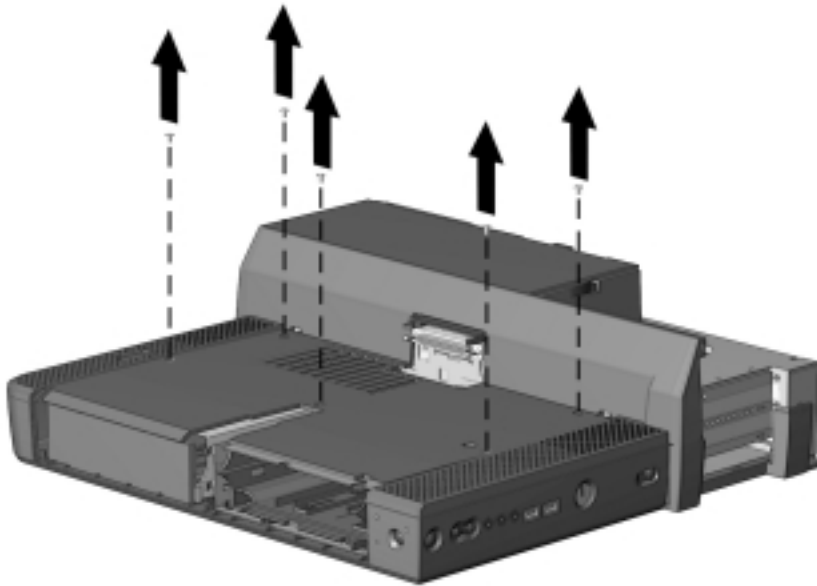


Figure 5-12. Removing the Top Cover Screws

6. Swing the top cover up and forward to remove it (Figure 5-13).

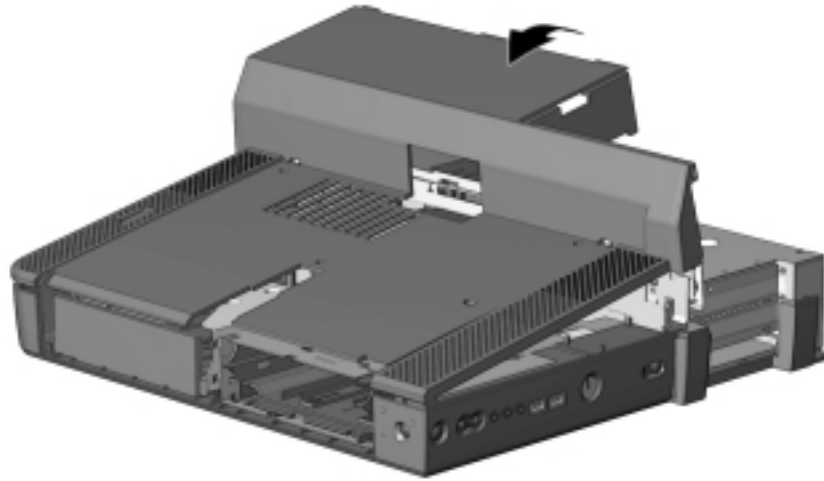


Figure 5-13. Removing the Top Cover

Reverse the removal procedure described above to install the top cover.

5.9 Half-Height Bay

The expansion base features one standard half-height bay, located on the left side of the expansion base. This bay supports any standard half-height drive, such as a diskette or hard drive.

Installing a Half-Height Drive

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the tray (Section 5.4).
3. Remove the connector cover (Section 5.5).
4. Remove the rear bezel (Section 5.6).
5. Remove the top cover (Section 5.8).
6. Remove the three screws ❶ that secure the bezel cage to the base cover (Figure 5-14).
7. Lift the bezel cage out of the base cover ❷.

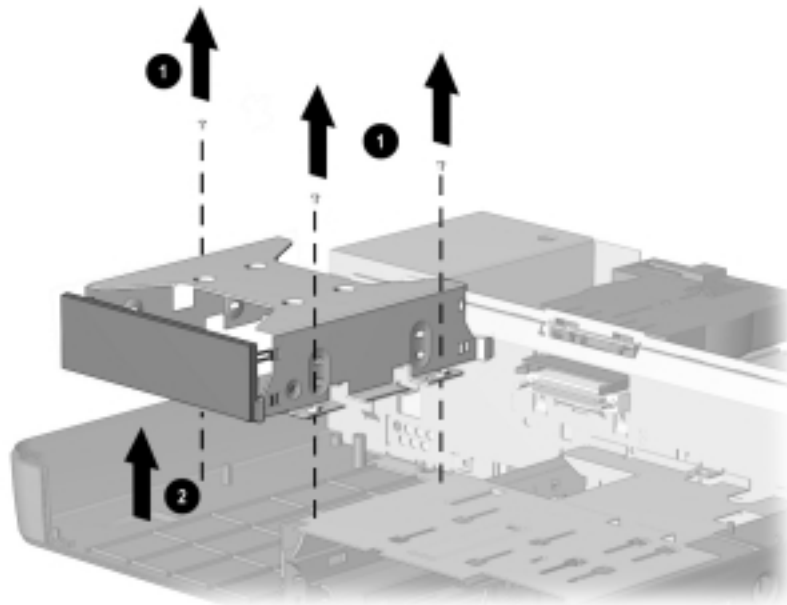


Figure 5-14. Removing the Bezel Cage

8. Remove the half-height bay blank bezel cover from the bezel cage (Figure 5-15).

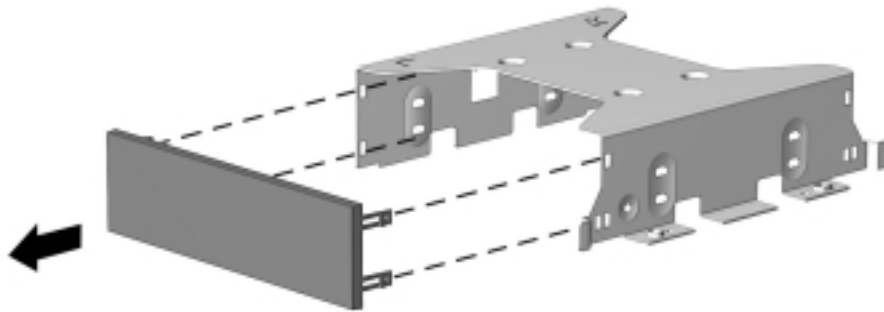


Figure 5-15. Removing the Half-Height Bay Blank Bezel Cover

9. If installed, remove the screws from the half-height drive to be installed (Figure 5-16).

NOTE: The half-height drive should have two screws installed in each side. If these screws are missing, appropriate-sized screws must be obtained to secure the half-height drive to the bezel cage.

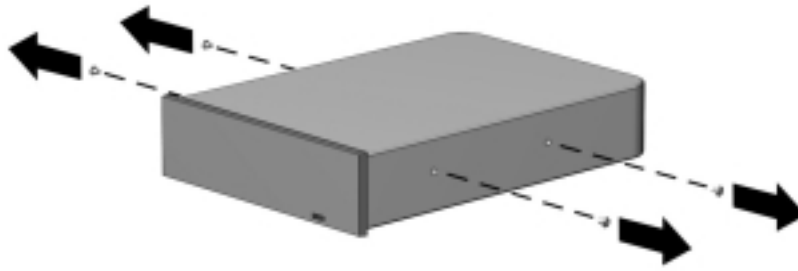


Figure 5-16. Removing the Half-Height Drive Screws

10. Align the front cover of the half-height drive with the tab on the front of the bezel cage ❶ (Figure 5-17).

NOTE: The bezel cage should be aligned so the “L” and “LEFT” indicators can be read when the half-height drive is installed in the expansion base left half-height bay.

11. Install the four screws ❷ that secure the half-height drive to the bezel cage.

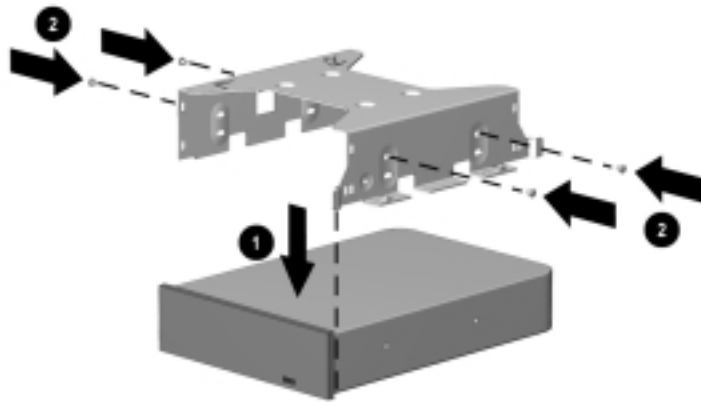


Figure 5-17. Attaching the Bezel Cage to the Half-Height Drive

Refer to the following sections for information on attaching the appropriate cables to the connectors on the half-height drive and the expansion base. Refer to the documentation that came with the half-height drive for information about which expansion base connectors to use.

12. Connect the half-height bay power cable to the power connector on the half-height device (Figure 5-18).

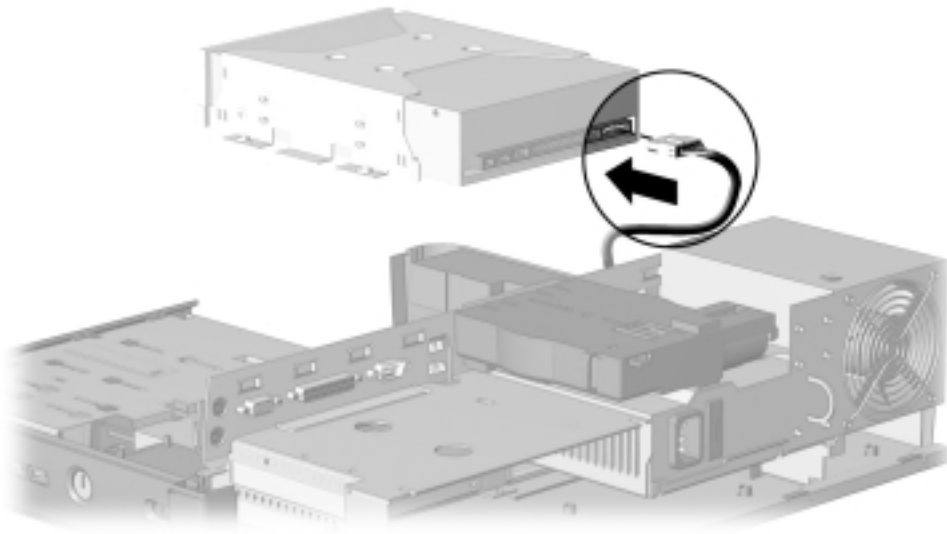


Figure 5-18. *Connecting the Power Cable*

13. If a diskette drive is being installed, connect the diskette drive cable to the diskette drive connector (Figure 5-19).

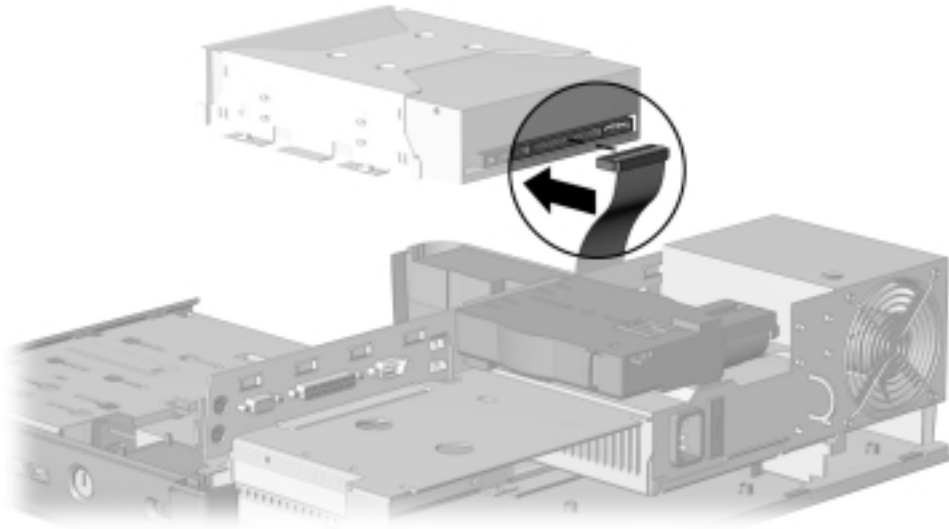


Figure 5-19. Connecting the Diskette Drive Cable

14. If a hard drive is being installed, connect the hard drive cable to the hard drive connector (Figure 5-20).

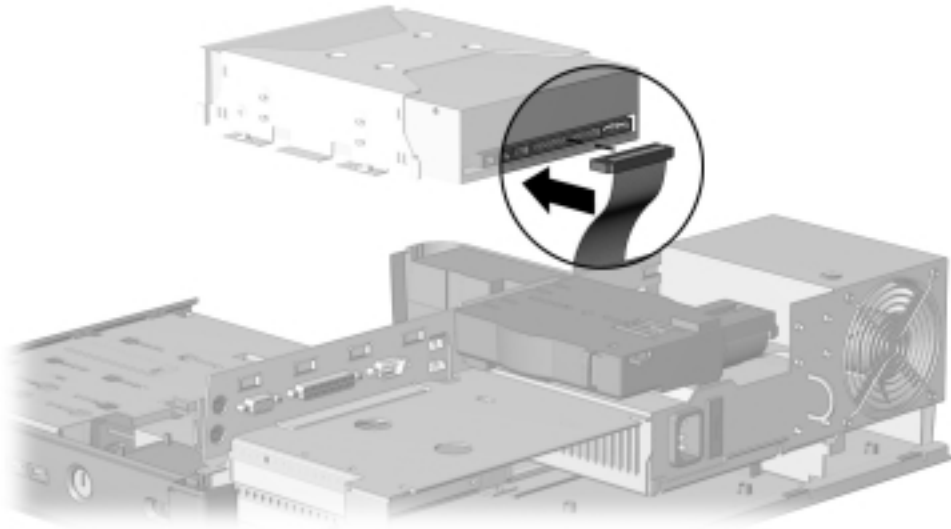


Figure 5-20. Connecting the Hard Drive Cable

15. If a CD- or DVD-ROM drive is being installed, connect the CD-ROM drive/audio cable to the connector (Figure 5-21).

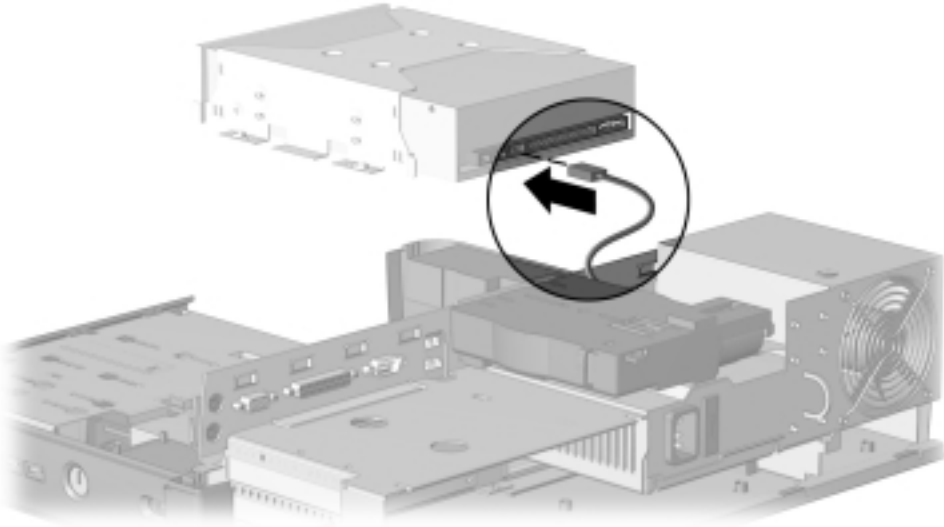


Figure 5-21. Connecting the CD-ROM Drive/Audio Cable

16. Insert the half-height drive assembly into the base cover ❶ (Figure 5-22).
17. Install the three screws ❷ that secure the bezel cage to the base cover.

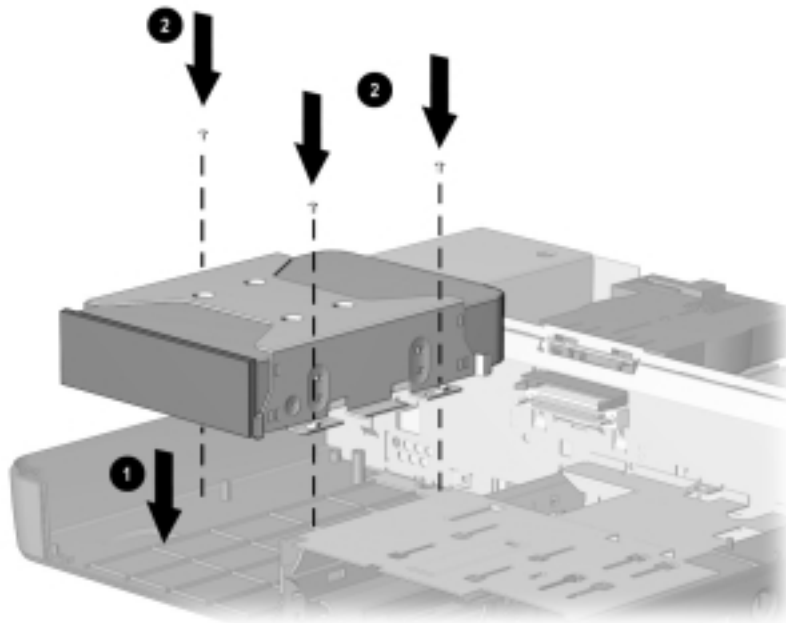


Figure 5-22. Installing a Half-Height Drive

Reverse the installation procedure described above to remove a half-height drive.

5.10 Left Speaker

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the tray (Section 5.4).
3. Remove the rear bezel (Section 5.6).
4. Remove the top cover (Section 5.8).
5. Remove the bezel cage (Section 5.9).
6. Remove the three screws ❶ that secure the left speaker to the base assembly.
7. Disconnect the left speaker cable from the MultiBay ❷ (Figure 5-23).
8. Remove the left speaker ❸ from the base assembly.

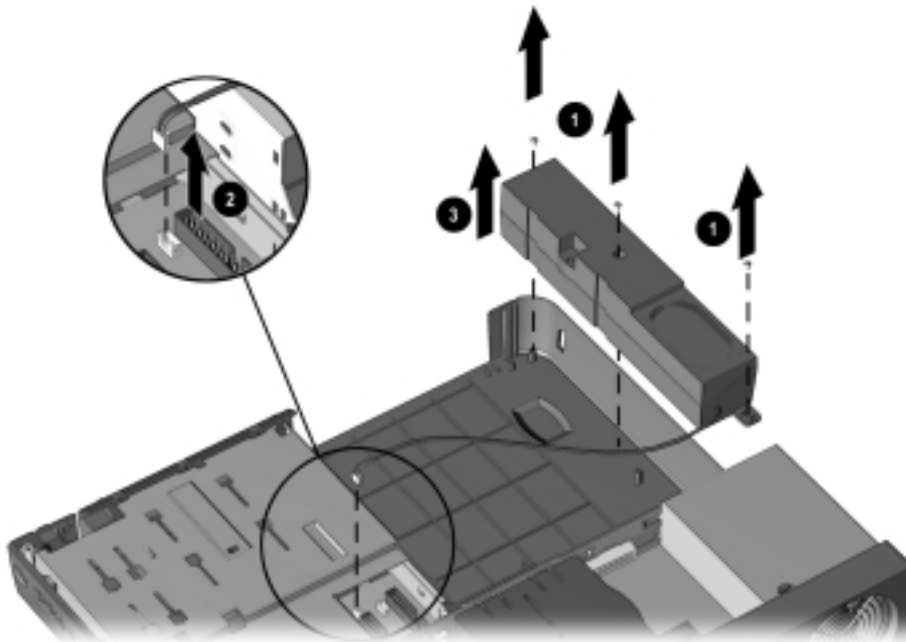


Figure 5-23. Removing the Left Speaker

Reverse the removal procedure described above to install the left speaker.

5.11 MultiBay

The MultiBay provides two MultiBays on the right side of the expansion base. These MultiBays support all MultiBay devices supported by the Compaq Armada Series of Personal Computers.

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the tray (Section 5.4).
3. Remove the connector cover (Section 5.5).
4. Remove the rear bezel (Section 5.6).
5. Remove the top cover (Section 5.8).
6. Disconnect the left speaker ❶, CD-ROM/audio ❷, hard drive ❸, and diskette drive cables ❹ from the MultiBay (Figure 5-24).

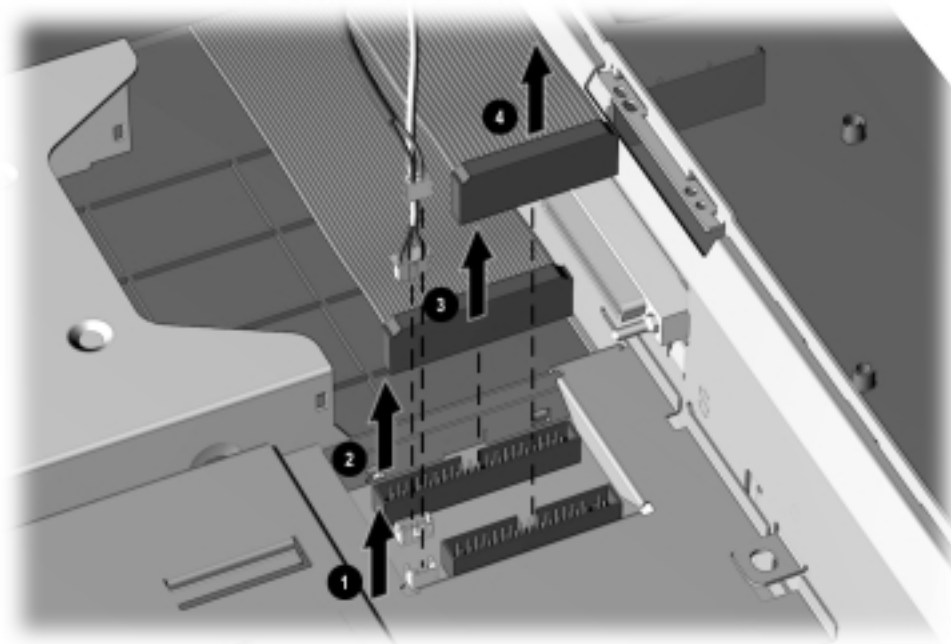


Figure 5-24. Disconnecting the Half-Height Bay and Left Speaker Cables

- Remove the six screws ❶ and ❷ that secure the MultiBay and control panel to the base cover (Figure 5-25).

NOTE: The screws removed in this step are two different sizes: four screws ❶ are Torx T10 screws; the other two screws ❷ are Torx T15 screws. Be sure to install these screws in the correct locations when reinstalling the MultiBay.

- Slide the MultiBay forward ❸ and then left it out of the base cover ❹.

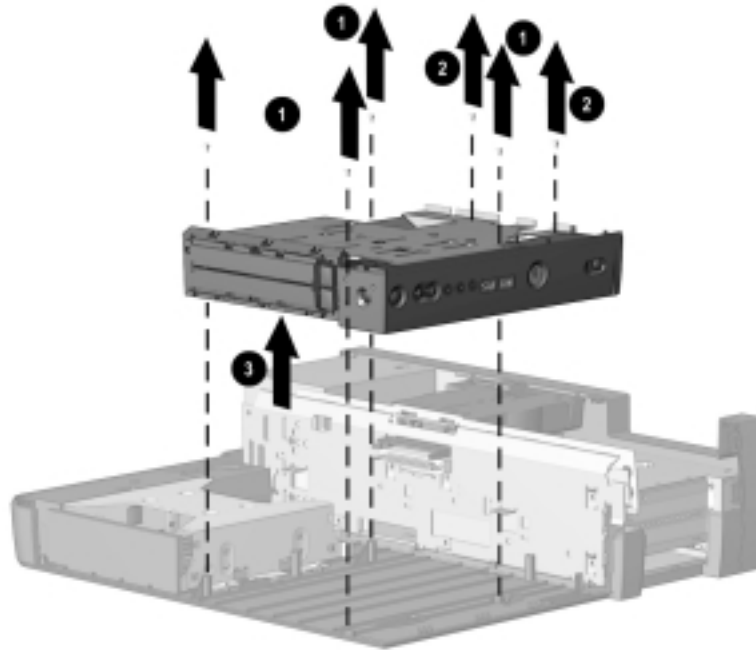


Figure 5-25. Removing the MultiBay and Control Panel

Reverse the removal procedure described above to install the MultiBay and control panel into the base cover.

5.12 Control Panel

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the tray (Section 5.4).
3. Remove the connector cover (Section 5.5).
4. Remove the rear bezel (Section 5.6).
5. Remove the top cover (Section 5.8).
6. Remove the MultiBay (Section 5.11).
7. Disconnect the right speaker cable ❶ from the MultiBay (Figure 5-26).
8. Remove the screw that secures the control panel to the MultiBay ❷.
9. Remove the control panel from the MultiBay ❸.

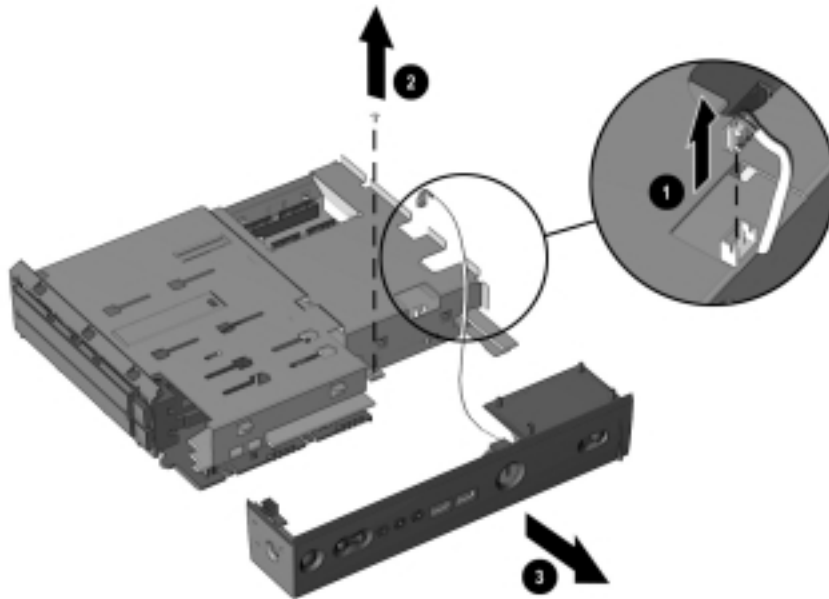


Figure 5-26. Removing the Control Panel

Reverse the removal procedure described above to attach the control panel to the MultiBay.

5.13 Mechanism Assembly

IMPORTANT: The mechanism assembly contains white lithium grease, which is used as a lubricant. The mechanism assembly is spared as a unit and should not be disassembled.

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the tray (Section 5.4).
3. Remove the rear bezel (Section 5.6).
4. Remove the top cover (Section 5.8).
5. Disconnect the two mechanism assembly cables from the backplane ❶.
6. Remove the two screws ❷ that secure the mechanism assembly to the backplane (Figure 5-27).

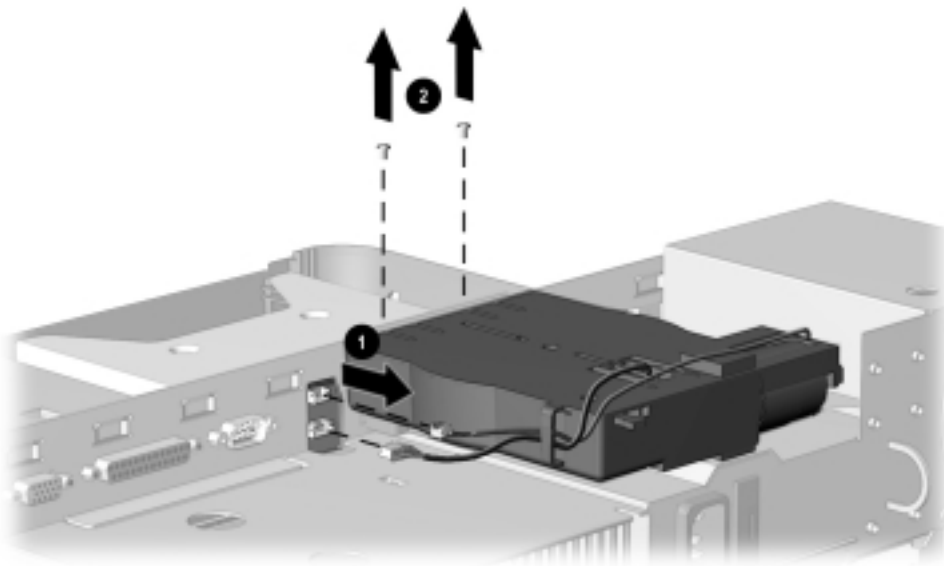


Figure 5-27. Disconnecting the Mechanism Assembly Cables and Removing the Mechanism Assembly Screws

7. Remove the mechanism assembly by pressing down on the two square tabs on the mechanism assembly cover ❶ and pulling the assembly out of the backplane ❷ (Figure 5-28).

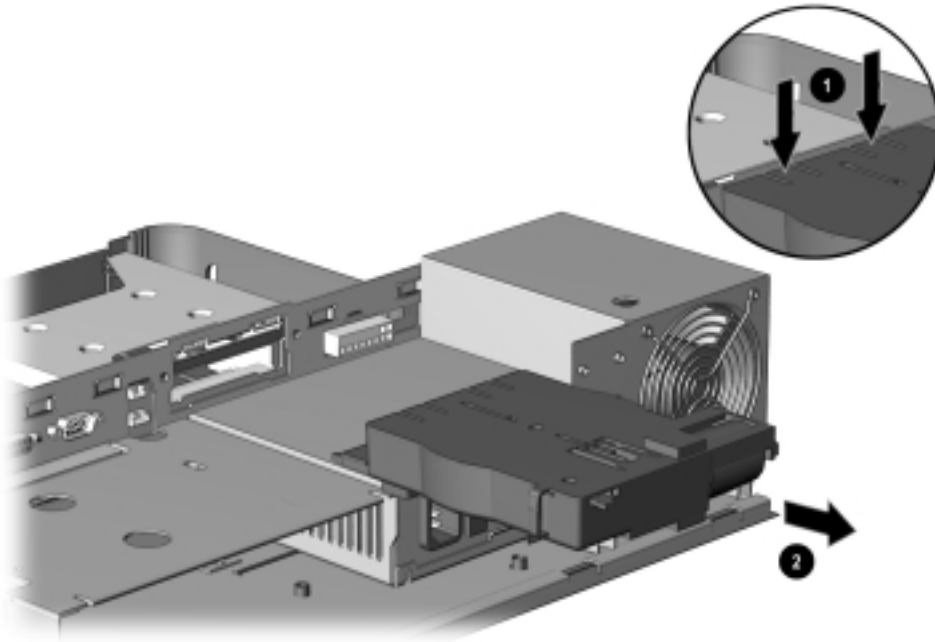


Figure 5-28. Removing the Mechanism Assembly

Reverse the removal procedure described above to install the mechanism assembly.

5.14 Power Supply



CAUTION: Do not handle or carry the power supply by the wiring harness. This can cause damage to the power supply and wiring harness.

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the tray (Section 5.4).
3. Remove the rear bezel (Section 5.6).
4. Remove the top cover (Section 5.8).
5. Disconnect the power supply cable connected to the backplane **1**.
6. Remove the four screws **2** that secure the power supply to the base cover (Figure 5-29).

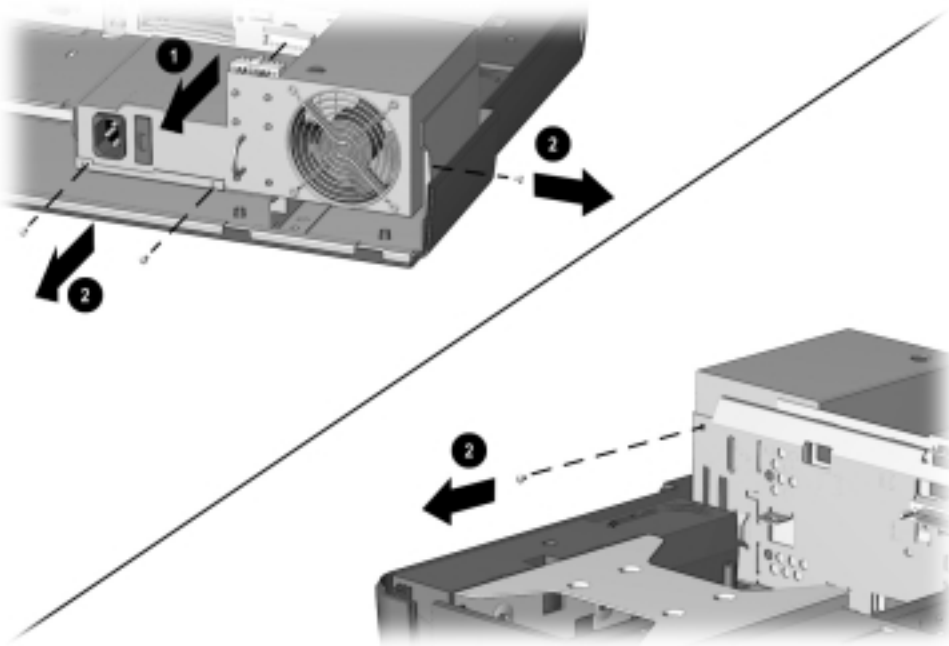


Figure 5-29. Disconnecting the Power Supply Cable and Removing the Power Supply Screws



CAUTION: Make sure the power supply cables are properly unclipped from the backplane before disconnecting the power supply cables.

7. If a half-height device is installed in the half-height bay, disconnect the half height bay power supply cable from the half-height device ❶ (Figure 5-30).
8. Partially remove the power supply from the base cover.
9. Route the half-height bay power supply cable through the opening in the backplane ❷.
10. Remove the power supply from the base cover ❸.

NOTE: In the illustration below, the half-height device is shown removed from the expansion base. In reality, it is not necessary to remove the half-height device to remove the power supply.

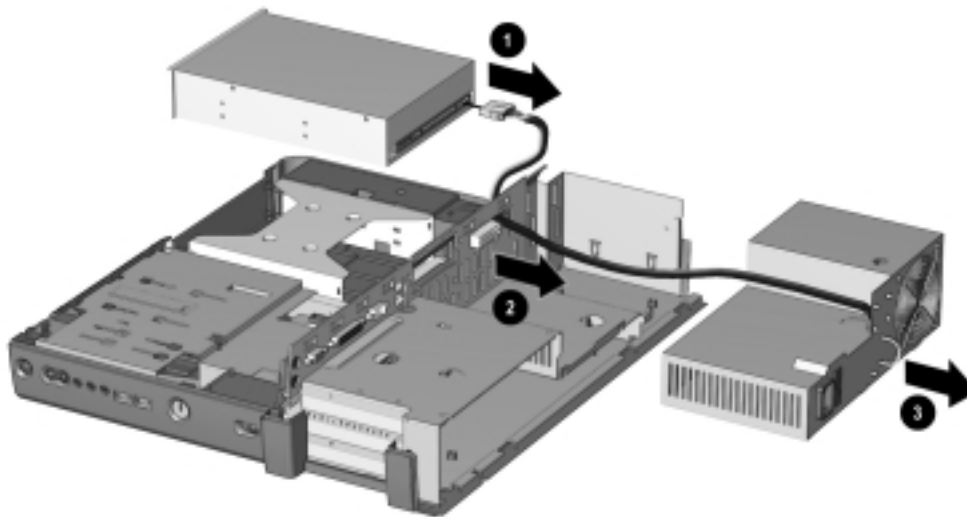


Figure 5-30. Removing the Power Supply

Reverse the removal procedure described above to install the power supply.

5.15 Backplane

1. Prepare the expansion base for disassembly (Section 5.3).
2. Remove the tray (Section 5.4).
3. Remove the rear bezel (Section 5.6).
4. If installed, remove any PCI expansion boards (Section 5.7).
5. Remove the top cover (Section 5.8).
6. Remove the MultiBay (Section 5.11).
7. Remove the mechanism assembly (Section 5.13).
8. Remove the power supply (Section 5.14).
9. Remove the three screws ❶ that secure the backplane to the base cover (Figure 5-31).
10. Remove the backplane ❷ from the base cover.

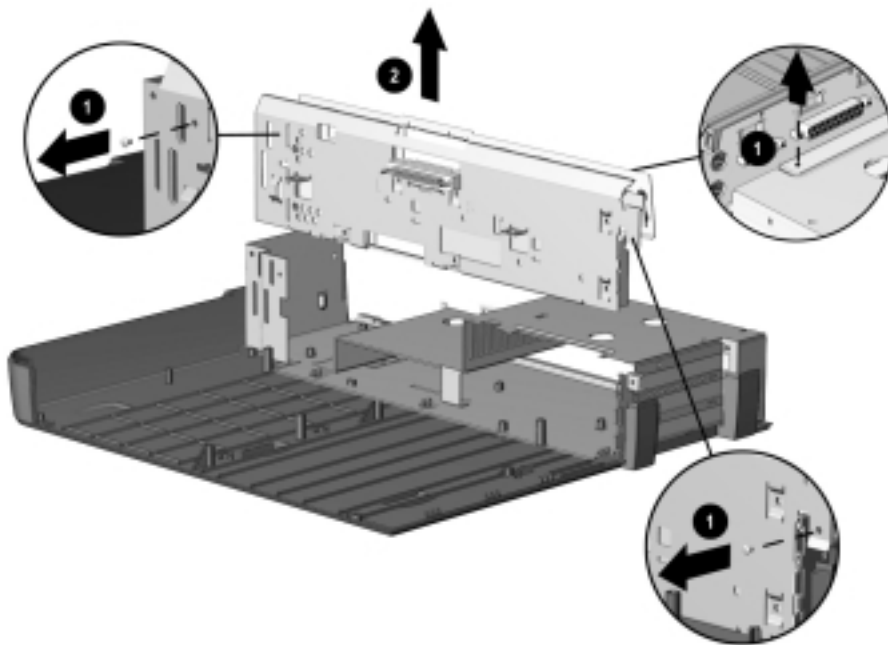


Figure 5-31. Removing the Backplane

Reverse the removal procedure described above to install the backplane.

chapter 6

SPECIFICATIONS

Table 6-1		
Expansion Base Physical and Environmental Specifications		
	U.S.	Metric
Dimensions		
Height		
with monitor support cover	5.7 in	14.6 cm
Without monitor support cover	5.0 in	12.7 cm
Depth		
with monitor support cover	17.5 in.	44.5 cm
Without monitor support cover	16.2 in.	45.7 cm
Width	18.0 in	45.7 cm
Weight		
with monitor support cover	24.9 lb	11.3 kg
without monitor support cover	19.2 lb	8.7 kg
Power Supply (Input)		
Operating Voltage	90 to 260 VAC	
Operating Current	5.0 Amp Maximum	
Rated Voltage	100-120 to 220-240 VAC	
Rated Current	2.5 to 5.0 Amps	
Rated Line Frequency	50 - 60 Hz	
Temperature		
Operating	50 to 95°F	10 to 35°C
Nonoperating	-22 to 140°F	-30 to 60°C
Relative Humidity		
Operating	20 to 80%	
Nonoperating	5 to 90%	
Altitude		
Operating	10,000 ft	3048 m
Nonoperating	30,000 ft	9144 m
Shock		
Operating	5 G, 11 ms, half sine	
Nonoperating	140 G, 2 ms, half sine	
Vibration		
Operating	0.25 G, 10 to 500 Hz sine	0.25 octave/min sweep
Nonoperating	0.75 G, 10 to 500 Hz sine	0.50 octave/min sweep
Monitor support cover(maximum)	75 lb	34 kg

The Expansion Base is designed in accordance with ANSI specifications (no. X3.131-1993, Rev 10h) and IEEE 802.3 specifications.

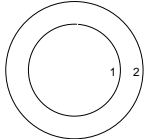
NOTE: This product is designed for IT power systems with phase-to-phase voltage not exceeding 240Vrms minimum charge.

appendix **A**

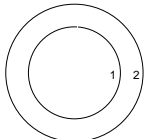
CONNECTOR PIN ASSIGNMENTS

This appendix contains the pin assignments for all external connectors.

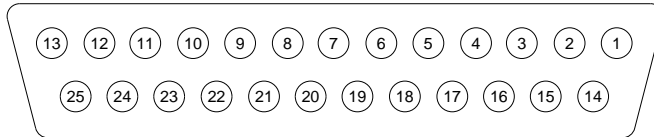
**Table A-1
Headphone Jack**

Connector	Pin	Signal
	1	Audio out
	2	Ground

**Table A-2
Microphone Jack**

Connector	Pin	Signal
	1	Audio in
	2	Ground

**Table A-3
Parallel Connector**

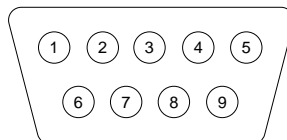


Pin	Signal	Pin	Signal
1	Strobe	14	Auto Linefeed
2	Data Bit 0	15	Error
3	Data Bit 1	16	Initialize
4	Data Bit 2	17	Select In
5	Data Bit 3	18	Ground
6	Data Bit 4	19	Ground
7	Data Bit 5	20	Ground
8	Data Bit 6	21	Ground
9	Data Bit 7	22	Ground
10	Acknowledge	23	Ground
11	Busy	24	Ground
12	Paper End	25	Ground
13	Select		

**Table A-4
External Keyboard/Mouse Connector**

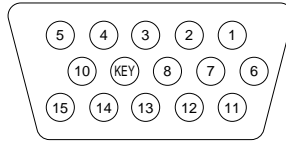
Connector	Pin	Signal
	1	Keyboard/Mouse DATA
	2	Keyboard/Mouse DATA
	3	Ground
	4	+5 VDC
	5	Keyboard/Mouse CLK
	6	Keyboard/Mouse CLK

**Table A-5
Serial Connector**



Pin	Signal	Pin	Signal
1	Carrier Detect	6	Data Set Ready
2	Receive Data	7	Ready to Send
3	Transmit Data	8	Clear to Send
4	Data Terminal Ready	9	Ring Indicator
5	Ground		

**Table A-6
External Monitor Connector**



Pin	Signal	Pin	Signal
1	Red Analog	9	+5 Volt Supply
2	Green Analog	10	Ground
3	Blue Analog	11	Monitor ID Bit 0
4	Monitor ID Bit 2	12	Monitor ID Bit 1 (SDA)
5	Ground	13	Horizontal Sync
6	Ground	14	Vertical Sync
7	Ground	15	Monitor ID Bit 3 (SCL)
8	Ground		

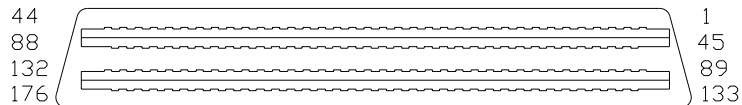
**Table A-7
Stereo Line-out Jack**

Connector	Pin	Signal
	1	Audio out
	2	Ground

**Table A-8
Stereo Line-in Jack**

Connector	Pin	Signal
	1	Audio in
	2	Ground

**Table A-13
Docking Connector**



Pin	Signal	Pin	Signal
1	EBOXL	34	XA1/R OUT
2	AGND	35	GND
3	EBOXS1	36	GND
4	RED	37	EXPCLK2
5	AGND	38	+3.3V
6	GREEN	39	EXPCLK0
7	AGRD	40	+5V (8051VCC)
8	BLUE	41	EXPCLK
9	AGND	42	EBOXS2
10	VSYN	43	GND
11	HSYN	44	EBOXL
12	DDC DAT	45	EBOXL /GND
13	DDC CLK	46	SRDY
14	GND	47	EBOXS1 /GND
15	INDEX	48	RI1 EX
16	RDATA	49	GND
17	TRK0	50	SLCT LD0
18	WDATA	51	PE LD1
19	WGATE	52	ACK LD2
20	STEP	53	BUSY LD3
21	DIR	54	GND
22	POWER ON	55	STRB LD4
23	SYS RESET	56	ALF LD5
24	GND	57	INIT LD6
25	DSKCHG	58	SLCTIN LD7
26	+5 V (VDD)	59	GND
27	AUGND	60	PDATA0 LD8
28	XA2/L IN	61	PDATA1 LD9
29	XA3/R IN	62	PDATA2 LD10
30	MIDO/MIC IN	63	PDATA3 LD11
31	AUGND	64	GND
32	XA0/L OUT	65	PDATA4 LD12
33	XSD/MIC SN	66	PDATA5 LD13

Continued

Table A-13 *Continued*

Pin	Signal	Pin	Signal
67	PDATA6 LD14	105	AD[16]
68	PDATA7 LD15	106	GND
69	GND	107	AD[15]
70	ERROR LCLK	108	AD[13]
71	RXD1 LVREQ	109	AD[11]
72	TXD1 LCREQ	110	AD[09]
73	RTS1 LEN	111	GND
74	GND	112	AD[06]
75	CTS1 LIIC CLK	113	AD[04]
76	DTR1 LIIC DAT	114	AD[02]
77	DSR1 EX	115	AD[00]
78	DCD1 EX	116	GND
79	12C DATA	117	FRAME
80	GND	118	TRDY
81	12C CLK	119	STOP
82	GND	120	PAR
83	HDSEL	121	CBE0
84	GND	122	CBE1
85	WPROT	123	GND
86	EBOXS2 /GND	124	KB CLK
87	ERDY	125	RSVD1/M CTRL2
88	EBOXL /GND	126	XSC/L OUT SN
89	FLUSHREQ	127	RSVD2/M OFF HOOK
90	MEMACK	128	KB DATA
91	PS2 VCC	129	MGND
92	SERIRQ	130	STANDBY
93	PS2 CLK	131	M DRZP
94	EXPREQ	132	M DRXN
95	AD[29]	133	VBATT
96	AD[31]	134	EXPGNT
97	AD[30]	135	VBATT
98	AD[28]	136	GND
99	AD[26]	137	VBATT
100	GND	138	PS2 DATA
101	AD[24]	139	VBATT
102	AD[22]	140	AD[25]
103	AD[20]	141	VBATT
104	AD[18]	142	AD[27]

Continued

Table A-13 *Continued*

Pin	Signal	Pin	Signal
143	VBATT	160	CBE3
144	AD[23]	161	CBE2
145	GND	162	IRDY
146	AD[21]	163	DEVSEL
147	AD[19]	164	LOCK
148	AD[17]	165	OERR
149	GND	166	SERR
150	AD[14]	167	GND
151	AD[12]	168	RSVD3
152	AD[10]	169	M 12C CLK
153	AD[08]	170	M 12C DATA
154	GND	171	M RING
155	AD[07]	172	MGND
156	AD[05]	173	M DXTN
157	AD[03]	174	GND
158	AD[01]	175	M DXTP
159	GND	176	MSTRBAT

appendix **B**

POWER CORD SET REQUIREMENTS

3-Conductor Power Cord Set

The wide range input feature of the Compaq ArmadaStation and Armada MiniStation permit them to operate from any line voltage from 100 to 120 or 220 to 240 volts AC.

The power cord sets received with the ArmadaStation and Armada MiniStation meet the requirements for use in the country where the equipment is purchased.

Power cord sets for use in other countries must meet the requirements of the country where the ArmadaStation and Armada MiniStation are used. For more information on power cord set requirements, contact a Compaq authorized reseller or service provider.

General Requirements

The requirements listed below are applicable to all countries:

1. The length of the power cord set must be at least 5.00 feet (1.5 m) and a maximum of 6.50 feet (2.0 m).
2. All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
3. The power cord set must have a minimum current capacity of 10A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the back of the ArmadaStation and Armada MiniStation.

Country-Specific Requirements

3-Conductor Power Cord Set Requirements-By Country		
Country	Accredited Agency	Applicable Note Numbers
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	JIS	3
The Netherlands	KEMA	1
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

Notes

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A, 250V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 0.75mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.

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